

Federal Service for Supervision of Consumer Rights Protection and Human Welfare (Rospotrebnadzor)
Federal Budgetary Research Institution “Ekaterinburg Medical Research Center for Industrial Workers’ Prophylaxis and Health Protection”, Rospotrebnadzor
Sverdlovsk Regional Office of Rospotrebnadzor
Federal Budgetary Healthcare Institution “Hygiene and Epidemiology Centre” in Sverdlovsk Region, Rospotrebnadzor
Ural Federal University named after the first President of Russia B.N. Yeltsin
Autonomous Non-Commercial Organization “Ural Regional Center for Environmental Epidemiology”

**TOPICS OF CURRENT HYGIENIC IMPORTANCE IN
NANOTOXICOLOGY: THEORETICAL PREMISES, HAZARDS
IDENTIFICATION AND WAYS OF THEIR ATTENUATION**

PROGRAMME

**All-Russian Research and Practice Conference with International
Participation**

(20-21 October 2016)

Ekaterinburg 2016

Dear colleagues,

Holding the All-Russian Research and Practice Conference with International Participation “Topics of current hygienic importance in nanotoxicology: theoretical premises, hazards identification and ways of their attenuation” is driven by developing the scientific basis and scientific, technological and medical applications for a wide range of new artificial or so called engineered nanomaterials.

At present, despite the large body of nanotechnology and nanomedicine research accumulated, the hygienic aspects of nanoparticles as a component of aerosols polluting the air in industrial facilities using long existing manufacturing processes have not been properly explored.

The studies of nanoparticle characteristics and specific bioactivity mechanisms carried out in many countries in the past decade have shaped a new branch of toxicology – nanotoxicology.

The conference will cover the topical issues of standards regulating occupational and non-occupational acceptable exposure levels for nanoparticles, studying nanoparticle adverse effect mechanisms, extrapolating experimental animal data to humans, developing and implementing reliable identification and quantitation methods for nanoparticles in the air and other environmental compartments.

I am sure that the Conference on Topics of current Hygienic Importance in Nanotoxicology: Theoretical Premises, Hazards Identification and Ways of Their Attenuation attended by the scientists and experts from Russia and other countries will promote the spirit creativity, and shared experiences and new knowledge acquired will undoubtedly be of practical and scientific use for all the participants.

Let me finally wish you a successful conference and fruitful discussion.

Head of Federal Service for Supervision
of Consumer Rights Protection
and Human Welfare,
Chief Public Health Officer,
ScD in Medicine, Professor



A.Yu. Popova

CONFERENCE STRUCTURE

Day One, 20 October 2016, Thursday

09:00 – 10:00	Registration of participants
10:00 – 10:45	Opening session, welcome addresses
10:45 – 12:45	Session №1
13:00 – 14:30	Lunch
14:30 – 16:10	Session №2
16:10 – 16:30	Coffee break
16:30 – 18:20	Session №2
18:30	Conference dinner

Day Two, 21 October 2016, Friday

09:00 – 10:00	Registration of participants
10:00 – 13:00	Session №3
11:20 – 11:40	Coffee break
11:40 – 13:00	Session №3
13:00 – 14:00	Lunch
14:00 – 16:00	Session №4
16:00 – 16:20	Coffee break
16:20 – 17:40	Session №4
17:40 – 18:00	Closing ceremony. Adopting resolution

Venue: The Onegin Hotel, 9th floor, Congress Hall “Forum”, 49 Rosa Luxemburg Street, Ekaterinburg, <http://www.hotelonegin.com>

Day One, 20 October 2016, Thursday
10:00 – 18:20

OPENING

10:00 – 10:45

Welcome addresses:

from V.B. Gurvich, Conference Co-chair, Director of Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection, Rospotrebnadzor,
from Rospotrebnadzor, from the Office of the Presidential Envoy to Ural Federal District of Russia, from Sverdlovsk Region Governor and Government, from the scientific and medical community, enterprises and other organizations

SESSION № 1

Co-Chairs: V.B. Gurvich, S.V. Kuzmin, B.A. Katsnelson, A.M. Tsatsakis

10:45 – 11:15

B.A. Katsnelson, V.B. Gurvich, L.I. Privalova, M.P. Sutunkova, I.A. Minigalieva, V.Ya. Shur, O.G. Makeyev, V.O. Ruzakov, I.E. Valamina, T.V. Bushueva, S.V. Grebenkina

Main directions of research, outcomes and perspectives in hygienic nanotoxicological studies carried out in Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection

Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection, Ural State Medical University, Ural Center for Shared Use «Modern nanotechnologies», Ekaterinburg, Russia

11:15 – 11:30

M.P. Sutunkova, L.I. Privalova, B.A. Katsnelson, V.B. Gurvich, I.A. Minigalieva, S.N. Solovyeva, I.V. Zubarev, V.Ya. Shur
The relative contribution of physiological and physico-chemical mechanisms to controlling pulmonary toxicokinetics of metal nanoparticles deposited under chronic inhalation exposure (as exemplified by exposure to Fe₂O₃)

Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection, Ural Center for Shared Use «Modern nanotechnologies», Ekaterinburg, Russia

- 11:35 – 11:50 **I.A. Minigalieva,** B.A. Katsnelson, A.N. Varaksin, V.G. Panov, L.I. Privalova, M.P. Sutunkova, I.E. Valamina
- Some general patterns and specific aspects of metal nanoparticle combined toxicity (experiments and mathematical modelling)**
- Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection, Ural State Medical University, Ekaterinburg, Russia*
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- 11:55 – 12:10 **L.I. Privalova,** B.A. Katsnelson, V.B. Gurvich, I.A. Minigalieva, M.P. Sutunkova, O.G. Makeyev, I.E. Valamina, E.V. Grigoryeva, S.V. Klinova, V.Ya. Shur, E.V. Shishkina
- Some principles of and means for increasing organism's resistance to adverse effects of metallic nanoparticles**
- Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection, Ural State Medical University, Ekaterinburg, Russia*
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- 12:15–12:30 **V.Ya. Shur,** A.E. Tyurnina¹, D.K. Kuznetsov, E.V. Shishkina, D.S. Vasileva, V.A. Vazhenin, A.P. Potapov, M.V. Morozova, I.V. Zubarev, V.I. Pryakhina
- The contribution of the Ural Centre for Shared Use “Modern Nanotechnologies” to experimental toxicological studies of metal oxide nanoparticles**
- Ural Center for Shared Use «Modern nanotechnologies», Ekaterinburg, Russia*
-
- 13:00 – 14-30 Lunch**

SESSION №2

Co-Chairs: L.I. Privalova, M.P. Moshkin, U.B. Vogel

- 14:30–14:45 **A.M. Tsatsakis**
Non-linear responses targeting risk assessment and personalised therapy issues. From toxicology to exposure science and forensics
University of Crete, Heraklion, Greece
- 14:50–15:05 **S.A. Khotimchenko**
Risk assessment of nanomaterials designed for food products: state of the art
Federal Research Centre for Nutrition and Biotechnology, Moscow, Russia
- 15:10–15:25 N.V. Zaitseva, **M.A. Zemlyanova**
Toxicological and environmental health characterization of some metallic nanoparticles depending on the exposure type: bioaccumulation and morphofunctional outcomes
Federal Scientific Center for Medical and Preventive Health Risk Management Technologies, Perm National Research Polytechnic University, Perm, Russia
- 15:30–15:45 **E. Alfaro Moreno**
Local and systemic effects induced by inhaled particles and nanoparticles
Swedish Toxicology Sciences Research Center, Södertälje, Sweden
- 15:50–16:05 **E. Fröhlich**
***In vitro* models for the assessment of short and prolonged exposure to nanoparticles**
Medical University of Graz, Austria
- 16:10–16:30 **Coffee break**

16:30–16:45	<p>M.P. Moshkin</p> <p>Neurobiological effects of nanoscale aerosols</p> <p><i>Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia</i></p>
16:50 – 17:05	<p>F.I. Ingel</p> <p>Nanoparticles of identical composition but different sizes induce genetic instability through qualitatively different mechanisms</p> <p><i>A.N. Sysin Research Institute of Human Ecology And Environmental Health, Moscow, Russia</i></p>
17:10 – 17:25	<p>U. Vogel, A.T. Saber, N.R. Jacobsen, S.S. Poulsen, C. Yauk, S. Halappanavar, H.Wallin</p> <p>Nanomaterial-induced pulmonary acute phase response constitutes a causal link between inhalation of nanomaterials and risk of cardiovascular disease</p> <p><i>Danish Nanosafety Center, Det Nationale Forskningscenter for Arbejdsmiljø, Copenhagen, Denmark</i></p>
17:30 – 17:45	<p>M.-F. Hsieh</p> <p>Liposomal Catechins for Combating Lipopolysaccharides-Activated Mouse Microglial Cells</p> <p><i>Chung Yuan Christian University Taoyuan, Taiwan</i></p>
17:50 – 18:20	Discussion
18:30	Conference dinner

Day Two, 21 October 2016, Friday

10:00 – 18:10

9:00 – 10:00 **Registration**

SESSION №3

Co-Chairs: S.V. Kuzmin, V.P. Chashchin, B.N. Filatov, L.M. Fatkhutdinova

10:00 – 10:15 I.V. Bukhtiyarov, T.A. Tkacheva

Substantiating safe levels of human exposure to nanoparticles

Research Institute of Occupational Medicine, Moscow, Russia

10:20 – 10:35 S.A. Gorbaney, L. Ellingsen, Y. Thomassen, **V.P. Chashchin**

The use of biomarkers of effect for assessing and predicting the health risk related to occupational exposure to nanosized aerosols at mining operations

*Northwest Research Center of Hygiene and Public Health, St. Petersburg,
The National Institute of Occupational Health, Oslo, Norway*

10:40 – 10:55 **L.M. Fatkhutdinova**

Characterization of occupational exposure to and medical-biological effects of multiwalled carbon nanotubes

Kazan State Medical University, Kazan, Russia

11:00 – 11:15 N.G. Britanov, I.K. Gorkina, V.V. Klauchek, A.Ya. Pocheptsov,
L.P. Tochilkina, **B.N. Filatov**

Hygienic issues associated with the production and application of engineered nanomaterials

Research Institute of Hygiene, Toxicology and Occupational Pathology, Volgograd, Russia

11:20 – 11:40 **Coffee break**

11:40 – 11:55 N.V. Zaitseva, **T.S. Ulanova**

The study of nanoparticles as components of industrial aerosols and suspended particulate matter in work zone air

*Federal Scientific Center for Medical and Preventive Health Risk Management
Technologies of Rospotrebnadzor, Perm National Research Polytechnic University,
Perm, Russia*

12:00 – 12:15 **T.V. Slyshkina**, V.B. Gurvich, O.F. Rosly, S.V. Martin, O.E. Galasheva
Methodological approaches to quantitative measurement of nanoscale aerosol in the air

Ekaterinburg Medical Research Center for Industrial Workers' Prophylaxis and Health Protection, Ekaterinburg, Russia

12:20 – 12:35 **P.C. De Moraes**
Ecotoxicity evaluation of exfoliated vermiculate-based magnetic nanocomposite developed for oil spill remediation

Anhui University, School of Chemistry and Chemical Engineering, Hefei, China

12:40 – 13:00 **Discussion**

13:00 – 14:00 **Lunch**

SESSION №4

Co-Chairs: V.B. Gurvich, B.A. Katsnelson, A.S. Radilov, A.M. Tsatsakis, S.A. Khotimchenko

14:00 – 14:15 **L.M.Sosedova**, M.A. Novikov, E.A. Titov
Special aspects of apoptosis-regulatory protein expression in neurons of white rats exposed to nanosilver encapsulated in polymer matrix

East-Siberian Institution of Medical and Ecological Research, Angarsk, Russia, Irkutsk Research Centre of the Siberian Branch of the Russian Academy of Sciences, Irkutsk, Russia

14:20 – 14:35 A.M. Zakharenko, **A.B. Engin**, V.V. Chernyshev, V.V. Chaika, S.M. Ugay, P.A. Nikiforov, V.V. Andreev, V.A. Drozd, A.V. Nikitina, S.F. Solomennik, O.R. Kudryavkina, X. Liu, W. Yuan, A.M. Tsatsakis, K.S. Golokhvast

Basophil mediated chronic allergic inflammation in vehicle-emitted particles exposure

Gazi University, Ankara, Turkey

- 14:40 – 14:55 **A.A. Shumakova**
Assessing aggregate risk of engineered nanomaterials and toxic elements
Federal Research Centre for Nutrition and Biotechnology, Moscow, Russia
- 15:00 – 15:15 **A.V. Glushkova, A.S. Radilov, S.A. Dulov, N.S. Khlebnikova**
Comparative approaches to risk assessment and hygienic regulation of nanomaterials in Russia and European Union countries
Research Institute of Hygiene, Occupational Pathology and Human Ecology, St. Petersburg, Russia
- 15:20 – 15:35 **A. A. Gusev**
Ecotoxicological assessment of multiwalled carbon nanotubes
Tambov State University, Russia
- 15:40 – 15:55 **A.V. Vorob'ev, V.I. Sigaev, A D. Tolchinskiy, S.N. Uspenskaya, Yu.V. Ivanova, E.V. Zvyagina, S.P. Rybalkin, L.V. Mikhina, S.G. Besaeva, A.A. Mazanova, N.R. Dyadishchev**
Inhalation toxicity assessment of multiwalled carbon nanotubes in rats based on the acute and chronic experiment results
Research Centre for Toxicology and Hygienic Regulation of Biopharmaceuticals – a branch of FSBI “The Institute of Immunology” of Russia’s Federal Medical-Biological Agency, Serpukhov, Russia
- 16:00 – 16:25 **Coffee break**
- 16:20 – 16:35 **I.V. Gmoshinski**
The impact of engineered nanomaterials on trace element homeostasis: its significance in risk assessment
Federal Research Centre for Nutrition and Biotechnology, Moscow, Russia
- 16:40 – 16:55 **L.G. Pyanova, V.A. Likholobov, A.V. Sedanov,**
Effective and safe modified carbon sorbents based on nanoglobular carbon for medical and veterinary application
Institute of Hydrocarbon Processing of the Siberian Branch of the Russian Academy of Sciences, Omsk, Russia

- 17:00 – 17:15 **D.A. Proshchenko**, N.V. Dorofeeva, M.A. Shambatov, V.V. Melekhin,
O.G. Makeyev
- Study of the cytotoxic profile of manganese oxide (II, III) and nickel
oxide (II) nanoparticles on human fibroblast culture**
- Ural State Medical University, Ural Federal University, Ekaterinburg, Russia*
- 17:20 – 17:35 **V.A. Vokina**, E.A. Titov, M.A. Novikov, V.S. Rukavishnikov,
B.G. Sukhov
- Experimental toxicity assessment of bismuth-based nanocomposite
via different exposure routes**
- East-Siberian Institution of Medical and Ecological Research, Angarsk, Institute of
Chemistry of the Siberian Branch of the Russian Academy of Sciences, Irkutsk,
Irkutsk Research Centre of the Siberian Branch of the Russian Academy of Sciences,
Irkutsk, Russia*
- 17:40 – 18:10 **Q&A session, discussion**
- Adopting resolution**